

TONNAGE, Etc.

TONNAGE.—The main system of ship's taxes and dues is carried out by capacity measurement. Several types are known, the chief being:—

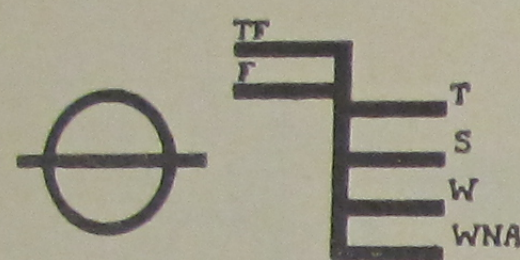
Gross Tonnage.—A measurement of the total internal volume (1 ton = 100 cu. ft.)

Net Tonnage.—The residual tonnage after deducting actual engine room space, crew space and navigation space from the gross tonnage. It is the ship's earning capacity.

Displacement Tonnage.—The total weight of water displaced by the ship when fully loaded.

Deadweight Tonnage.—The number of tons (of 2240 lb.) the ship is capable of carrying.

PLIMSOLL LINE.—The top edge of each line limits the depth to which the ship may be loaded in different conditions. *TF*



marks the tropical fresh water load line, *F* the fresh water load line, *T* the tropical load line, *S* and the horizontal line through the circle marks the summer salt water load line, *W* the winter salt water load line, and *WNA* (for vessels under 330 ft. trading across the North Atlantic)

the winter North Atlantic load line. Sailing vessels and timber carrying ships are specially marked.

DRAFT MARKS.—The figures on the stem and stern indicate the depth of the ship below the water level at each end. These figures are six inches high and there is a six-inch space between each. Thus from the bottom of one figure (i.e., where readings are taken from), to the bottom of the next is exactly 1 foot.

LIGHTS.

SHIP'S LIGHTS.—For steam vessels over 150 feet in length the following lights are carried:—

Under Way.—A white light on the foremast and one at least 15 feet higher on the aftermast. A green light on the starboard side, a red light on the port side and a white light at the stern on the same level as the side lights.

At Anchor.—A white light in the fore-end not less than 20 feet above the hull and a white light at the stern not less than 15 feet below the forward one.

All the above lights must be visible over fixed distances and arcs.

LIGHTHOUSES AND LIGHTSHIPS.—The number of flashes in a given time, the colour, the kind of light, or the sound signal gives, when reference is made to the chart, the name of the lighthouse or lightvessel. The types of lights are:—

A **Flashing Light** is one which appears at regular intervals.

A **Fixed and Flashing Light** is one which flares up at regular intervals from a fixed light.

A **Group Flashing light** is one in which groups of flashes appear at regular intervals.

An **Alternating Light** is one which changes colour.

An **Occulting Light** is one in which the light is of equal or longer duration than the dark.

SIREN AND BELL SIGNALS

	Signal.	Meaning.
In Fog.	1 long blast every 2 min.	Steam vessel making way through the water.
	2 long blasts every 2 min. (1 sec. interval) ...	Steam vessel not making way through the water.
	1 long, 2 short blasts in succession every 2 min. ...	Vessel towing, laying cable or not under command.
	Bell rung every min. for 5 sec.	Vessel at anchor.
Ships in Sight.	1 short blast	"I am directing my course to starboard."
	2 short blasts	"I am directing my course to port."
	3 short blasts	"My engines are going full speed astern."
	4 short blasts	"I am canting."

WEATHER.

BAROMETER RISING indicates less wind, northerly wind, dry weather or less rain.

BAROMETER FALLING indicates stronger wind, southerly wind or more rain.

FAIR WEATHER is probable when the "wind follows the sun," i.e., when it comes from east in morning and west in the evening; when the sky is light blue; when the sea is phosphorescent; when many jelly fish are seen.

WET OR BAD WEATHER if the wind backs from west to east during the day; when the sky is dark blue or porpoises are seen in shallow water. Rain is also indicated if the sun rises or sets behind a bank of clouds or if the sky is pale yellow at sunset. Wind and rain may be expected if a distant but distinct halo is seen round the moon.

GALES are suggested by deep yellow clouds at sunset and by "Mare's Tails" (streaky ragged clouds).

WEATHER—Continued.

BEAUFORT WIND SCALE.

No.	Velocity Knots.	Pressure lb./sq. ft.	Description.
0	0	0	Calm.
1	1-3	.01- .04	Light Air.
2	4-6	.05- .16	Light Breeze.
3	7-10	.17- .44	Gentle Breeze.
4	11-16	.45- .96	Moderate Breeze.
5	17-21	.97- 1.75	Fresh Breeze.
6	22-27	1.76- 2.88	Strong Breeze.
7	28-33	2.89- 4.435	Moderate Gale or Half a Gale.
8	34-40	4.44- 6.4	Fresh Gale.
9	41-47	6.46- 9.00	Strong Gale.
10	48-55	9.01-12.16	Heavy Gale or Whole Gale.
11	56-65	12.17-15.97	Storm.
12	above 65	15.98 & above	Hurricane.

SEA DISTURBANCE SCALE.

No.	Description.	Height of Wave, Crest to Trough.
0	Calm.	0
1	Very Smooth.	Less than 1 ft.
2	Smooth.	1-2 ft.
3	Slight.	2-3 "
4	Moderate.	3-5 "
5	Rather Rough.	5-8 "
6	Rough.	8-12 "
7	High.	12-20 "
8	Very High.	20-40 "
9	Precipitous.	40 ft. and over.

VISIBILITY SCALE.

No.	Description.	Distance of Vision.
0	Dense Fog.	Objects not visible at 50 yd.
1	Thick Fog.	" " 300 "
2	Fog.	" " 600 "
3	Moderate Fog.	" " 1 ml.
4	Mist or Thin Fog.	" " 1 "
5	Poor Visibility.	" " 2 "
6	Moderate Visibility.	" " 5 "
7	Good Visibility.	" " 10 "
8	Very Good Visibility.	" " 30 "
9	Exceptional Visibility.	Objects visible at more than 30 ml.

NAUTICAL MEASURE.

6 Feet ...	...	= 1 Fathom
100 Fathoms ...	...	= 1 Cable
10 Cables ...	...	= 1 Nautical Mile
1 Nautical Mile		= 6080 Feet or 1.151 Statute Miles
3 Miles ...	...	= 1 League
1 Knot ...	...	= 1 Nautical Mile per Hour (Speed Measure)

TIME.

60 Seconds ...	...	= 1 Minute
60 Minutes ...	...	= 1 Hour
24 Hours ...	...	= 1 Mean Solar Day
7 Days ...	...	= 1 Week
28 Days ...	...	= 1 Lunar Month
12 Calendar Months (365 Days)		= 1 Civil Year
365 Days, 5 Hours, 48 Minutes, 47.6352 Seconds ...	...	= 1 Solar Year

YOUR WATCH A COMPASS.

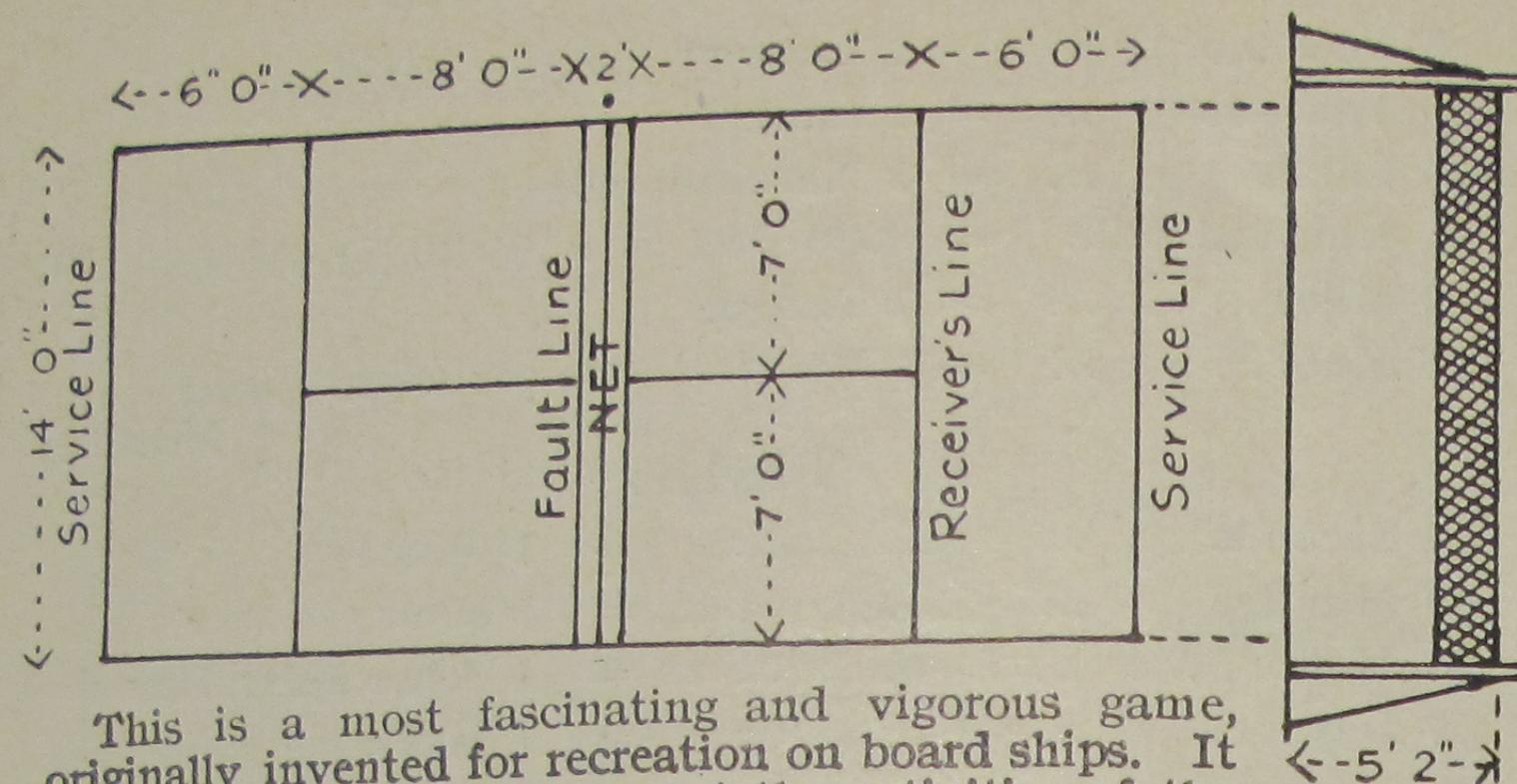
By holding your Watch with the hour hand pointing towards the sun, the point exactly half-way between the hour hand and the figure 12 on the dial is *DUE SOUTH*.

RELATION BETWEEN TIME AND LONGITUDE.

Longitude	Time	Longitude	Time	Longitude	Time
15"	1 sec.	45°	3 hours	135°	9 hours
1'	4 "	60°	4 "	150°	10 "
15'	1 min.	75°	5 "	165°	11 "
1°	4 "	90°	6 "	180°	12 "
15°	1 hour	105°	7 "	—	—
30°	2 "	120°	8 "	—	—

	Nautical Miles		Nautical Miles
Nautical Mile ...	1.00	German Rathem	4.064
British Sta. Land Mile	0.868	Italian Mile	1.000
Austrian Mile ...	4.094	Norwegian Mile	6.057
Danish Mile ...	4.064	Russian Mile	0.576
French Kilometre ...	0.539	Swedish Mile	5.769
German Geographic Mile	4.000		

DECK TENNIS.



This is a most fascinating and vigorous game, originally invented for recreation on board ships. It is now finding a place amongst the activities of the young folks on land. Little space is required to mark out a court, and all the equipment necessary can be had for the outlay of a few coppers.

The game is developed on somewhat similar lines to lawn tennis. Rope quoits are used instead of bat and ball, and a strip of netting with two supporting poles completes the equipment. The diagram will show how the court is arranged. Two or four players may take part in a game, and the scoring is the same as in tennis.

How to Play.—The server, standing with both feet behind the base line of the service court, throws the quoit with an upward action diagonally across the net to the receiver's court. Until the quoit leaves the server's hand the receiver must stand behind the receiver's line. Spinning the quoit, unless in the horizontal plane, is not permitted in the service. After the service the quoit may be spun or twisted, provided the throwing action is upward and the hand is not raised above the shoulder line. Two services are allowed.

Service Faults.

Raising the hand above shoulder line.

Quoit falling into wrong court or dropping outside the boundary line.

Quoit falling between net and fault line.

Server stepping inside the court to serve.

The penalty for any of these faults is loss of point. The service goes "clockwise" and changes after each game.

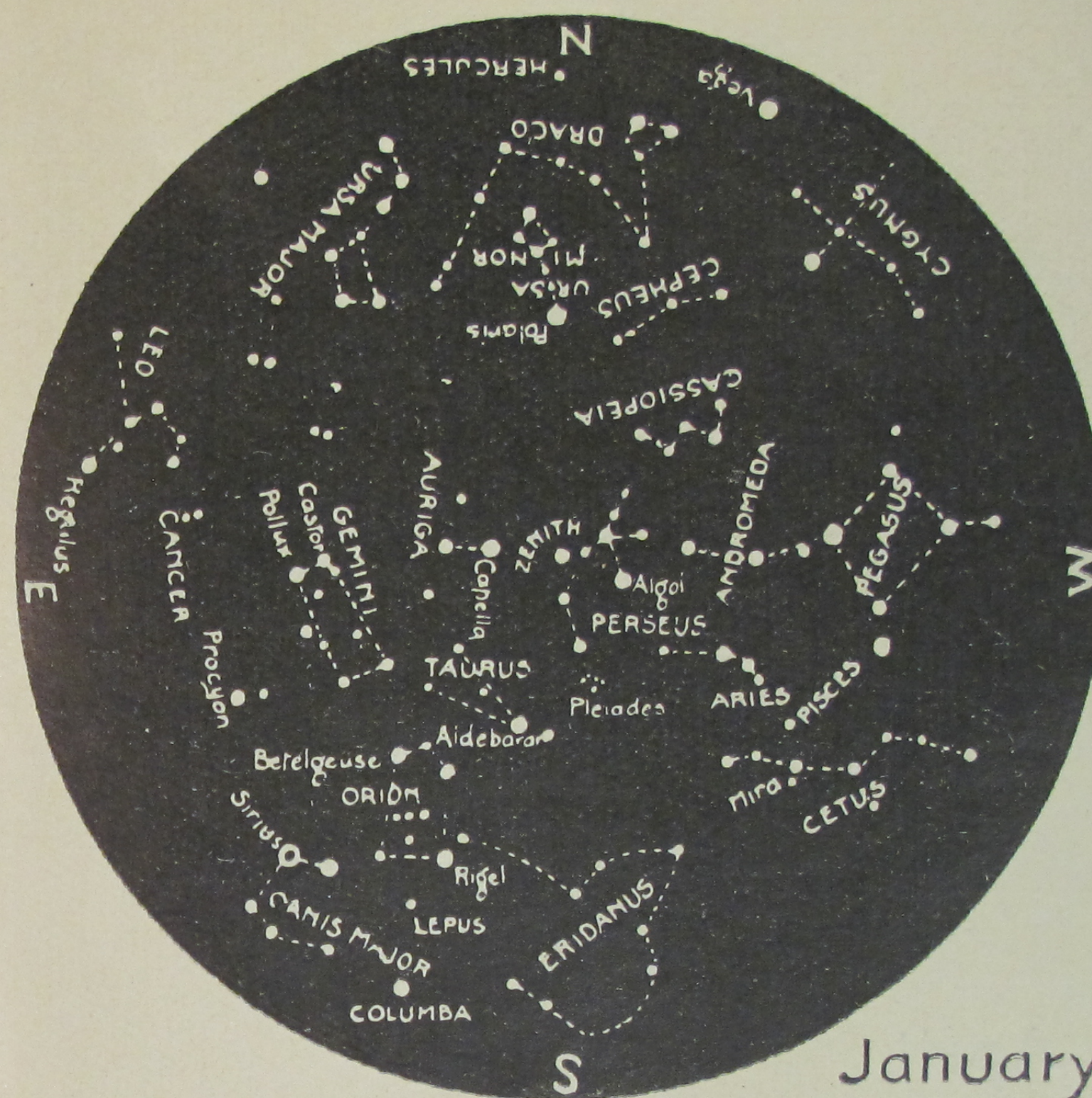
The quoit must be returned by the hand with which it is caught. Delay in returning may mean the loss of a point. Turning the body round between catching and returning the quoit is a fault. A player must not have either foot over the fault line when taking a quoit. A quoit touching both hands or any portion of a player's body other than the hand, is a fault.

When playing doubles, it is a fault for both receivers to touch the quoit before a return is made.

A quoit landing on the boundary line is "in."

Six games make a set.

THE HEAVENS.



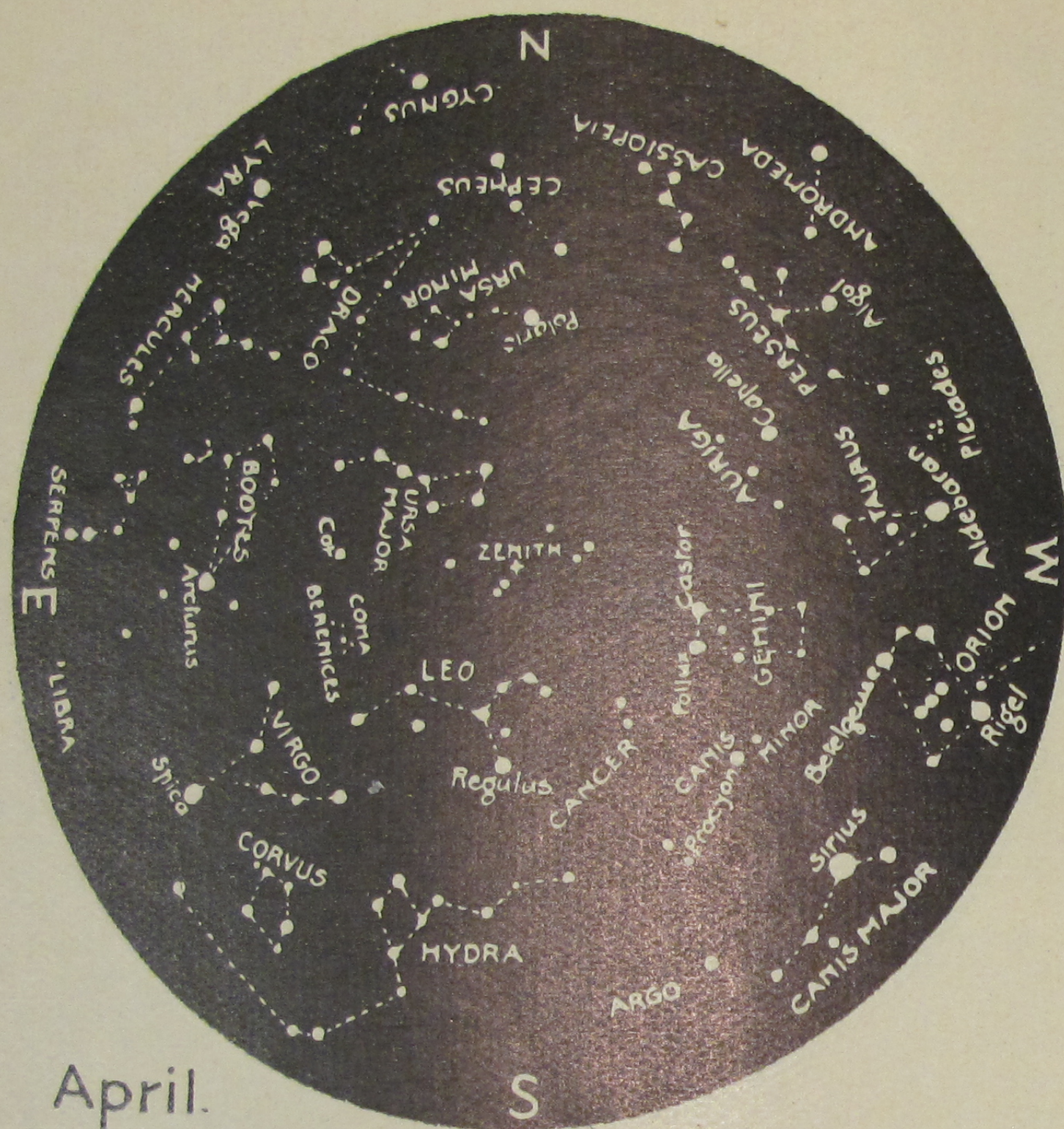
January

The principal objects to be seen in the heavens after dark are: the moon—which journeys round the earth; the planets of which the earth is one—which travel round the sun; and the stars.

Owing to the daily revolution which the earth makes on its axis, all the heavenly bodies appear to move in a circle in the sky. If part of the path lies below the horizon of the place of observation, the body travelling this path rises and sets; if no part of the path is below the horizon, the body will always be visible when atmospheric conditions are favourable. For example, because of the obliquity of the earth's axis, the apparent path of the sun in the Arctic regions is wholly above the horizon for days in mid-summer, hence it never sets in that time, while in mid-winter its path is wholly below the horizon and for a corresponding period it does not rise.

To observers in northern latitudes the Pole Star (Polaris), and other stars not too far away from it, complete the diurnal circuit without dipping below the horizon, so they can always be observed after dark in favourable atmospheric conditions. They will not always be in the same position in the sky, but

THE HEAVENS—Continued.



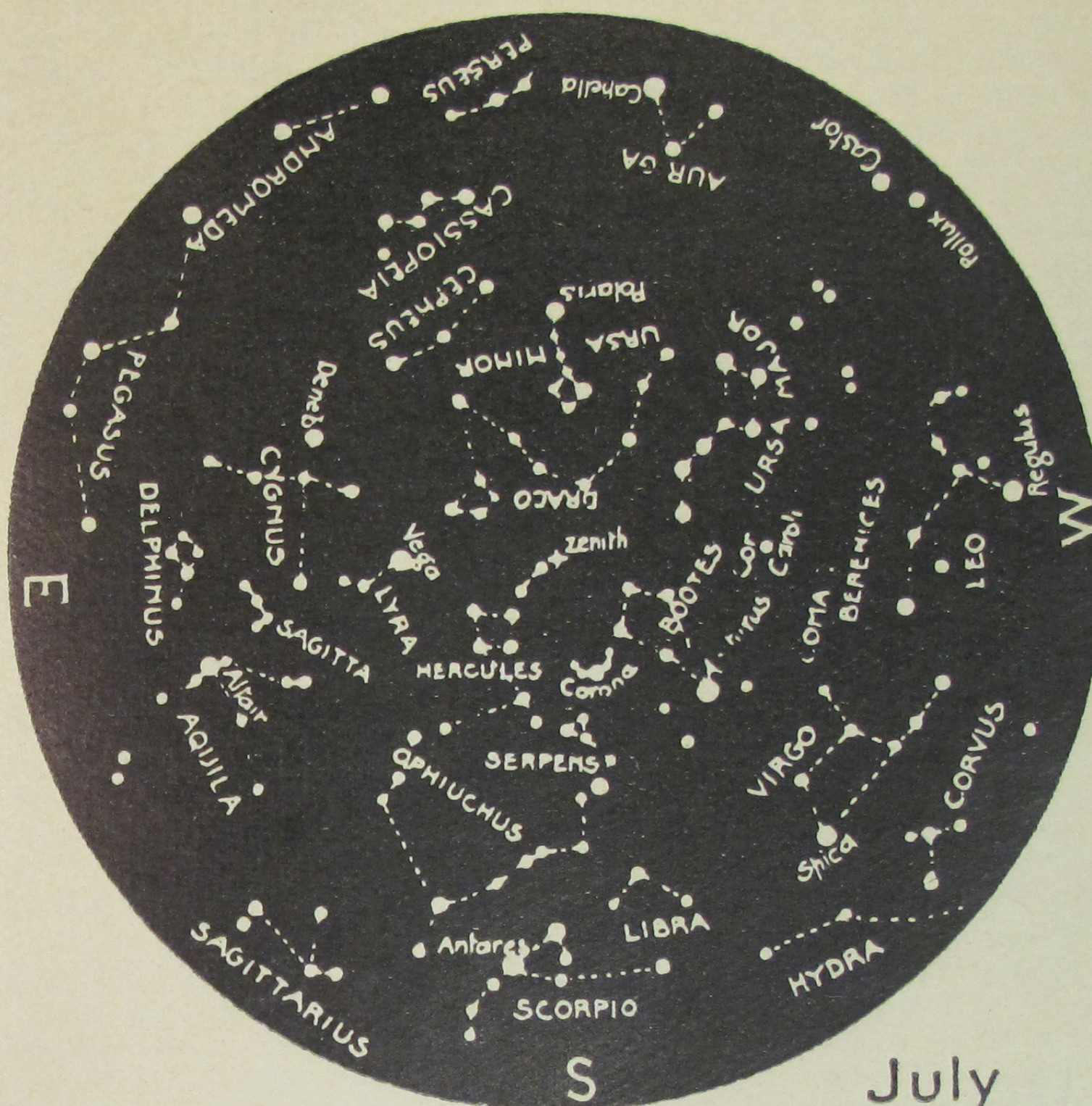
April.

they will retain their positions relative to each other. Other stars, which lie nearer the horizon, rise and set nightly.

The planets, owing to the fact that they journey round the sun in the same manner as the earth does, change their position relative to the stars. They are visible after dark at certain periods only, their degree of brightness changes with their distance from the earth, and the time of night at which they are visible also alters with their position. For example, Venus may be visible as a morning star or as an evening star. In the former case it rises a little time before the sun and sets a little later than the sun.

Any one wishing to become acquainted with the stars should ask some person who knows them to point out a few of the stars and constellations which are most easily recognised. If he then makes a point of observing them for some nights in succession it will become an easy matter for him to make a rough allowance for their change of position relative to the horizon due to the change in the ship's latitude. It should also be remembered that stars rise, culminate, and set, four minutes earlier each day.

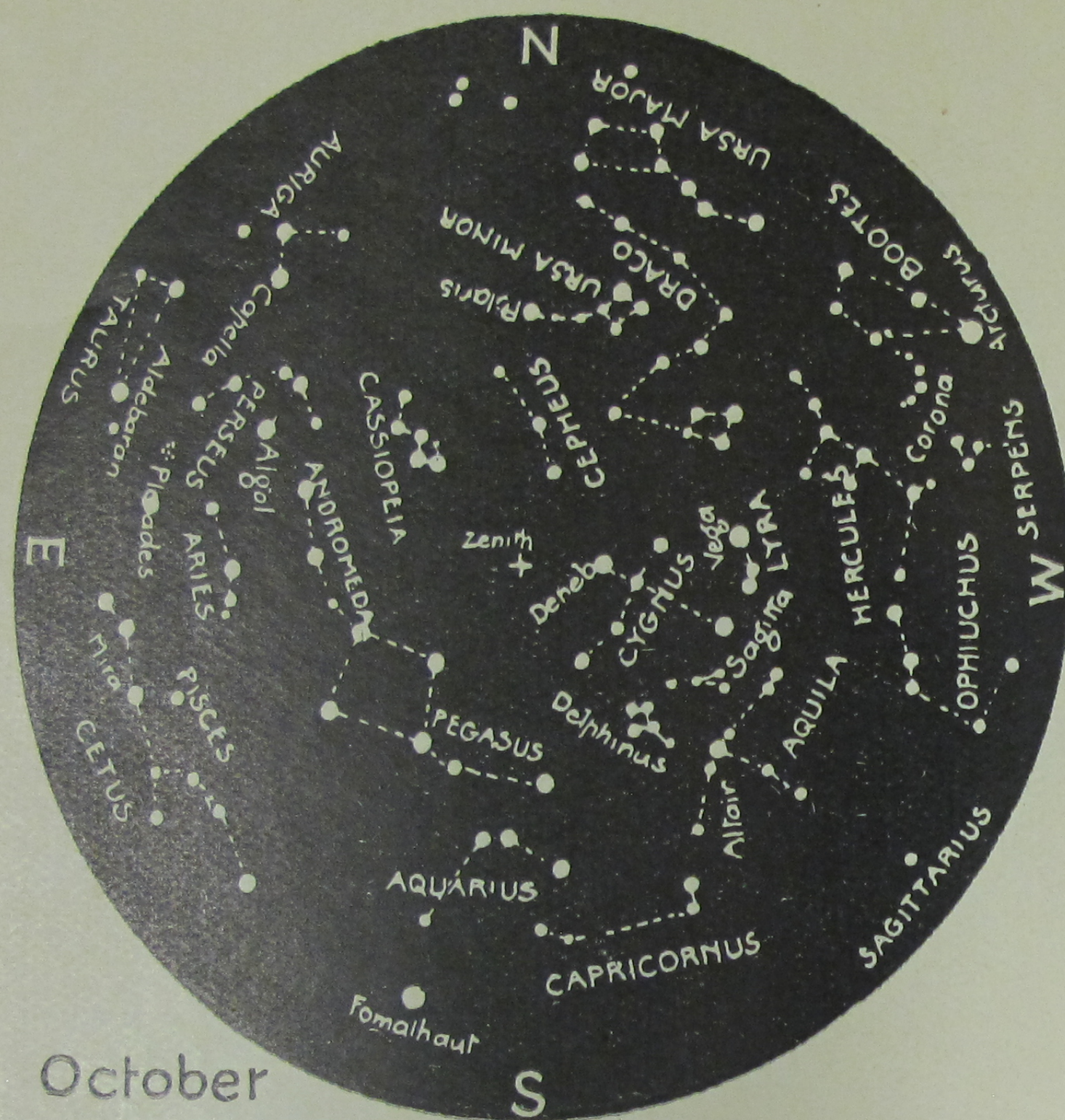
THE HEAVENS—Continued.



July

Time, as used for everyday purposes, is regulated by the sun, and is known as Mean Solar Time. The period between successive times of the sun's passage across the meridian is not invariable, so the average of these periods is taken as the Mean Solar Day. Time, as reckoned by the stars, is called Siderial Time. The length of the siderial day is fixed by the interval of time between successive passages of a fixed star across the meridian. This siderial day is shorter than the solar day, being equivalent to about 23 hours 56 minutes. For astronomical purposes siderial time is more convenient than solar time, since, on the former reckoning, the meridian passage of a star is practically the same, day after day, whereas on solar reckoning it is about four minutes earlier on each succeeding day.

The Northern Constellation Ursa Major (the Plough, or Great Bear) is probably familiar to most people in the Northern hemisphere. When it has been located in the sky, reference to the accompanying charts should enable other conspicuous constellations shown to be identified. For example, the two stars in Ursa Major farthest from the "handle" of the "plough," may be used to find the Pole Star (Polaris). A line joining



these two stars (known as the Pointers), when produced towards the pole, leads to the Pole Star. This star is not exactly situated at the pole, but is very near to it. Hence, when it is located, it gives a very good idea of direction. Cassiopeia lies on the opposite side of the pole star to Ursa Major, and can be readily identified. When these two constellations have been picked out, reference to the charts will speedily enable others to be recognised by their positions relative to each other.

For position-finding by the stars, as in navigation, it is necessary to locate a star or stars which will pass across the meridian of the place of observation before setting. Any such star, if sufficiently bright and surely identified, will serve. The necessary information for this purpose and for finding the exact time of the star's meridian passage is found by reference to a nautical almanac and correcting for position by calculation. The correction entails more technical knowledge than is possessed by most passengers.

"Shooting stars" are simply masses of matter, which, rushing into the earth's atmosphere at enormous speeds, are heated by the friction until they become luminous.

PHOTOGRAPHIC HINTS.

CAMERA.—The kind of camera required will depend upon the type of subject it is proposed to photograph. The ordinary folding or box camera using roll films is quite suitable for ordinary snapshots of landscapes, groups, etc. If, however, it is desired to photograph tall buildings, columns, etc., a special type of camera with rising and falling front is required. If an ordinary camera is tilted so as to take in the top of a tall building it will be found when the negative is developed that vertical lines which should be parallel run towards each other from bottom to top, giving a badly distorted picture. It is necessary that the bottom edge of plate or film should be horizontal and the plane of the plate or film vertical when making an exposure, hence the value of the rising and falling front to get in the tops of architectural subjects without tilting the camera.

LENS.—If the light is good enough to permit of satisfactory exposure with stop $f/11$ or smaller, a single lens will be quite satisfactory for most ordinary subjects, although there will be a tendency for lines to curve which should be straight. This will not usually be noticeable in landscape or group snapshots. An R.R. lens working with stop $f/8$ will permit of better timing when the light is not so good, while an anastigmat lens working at $f/6.3$ or larger aperture enables good snapshots to be taken in a still poorer light. It must be remembered, however, that with a large opening, focusing must be done more accurately, for, although an anastigmat lens gives perfect definition over the whole plane in focus with its largest aperture in use, yet the *depth of focus* is not so great as with smaller stops. By "depth of focus" is meant the power of reproducing objects sharply at different distances from the lens. Therefore, if conditions of lighting and nature of subject permit, it is better to stop down even an anastigmat. On the other hand, the wider stop is available for use in poor lighting conditions or where a shorter exposure is advisable for snapping moving objects. In such cases be sure that the *principal* subject is in perfect focus.

TAKING THE PHOTOGRAPH.—Space does not permit of a discussion of suitable subjects for snapshots and their arrangement, but the following hints as to lighting may be of service.

If the sun is coming directly from behind, the picture is liable to be flat and monotonous; likewise, if the camera is facing the sun, the composition will generally be all shadow. It is usually best to have the sun to one side or coming from behind over the operator's shoulder. In bright sunshine it is necessary to guard against "halation" caused by glare from highly reflecting surfaces. If for any reason a picture is desired of any subject taken with the sun facing the camera, see that the lens is screened from the direct rays of the sun.

To judge length of exposure in any particular conditions is a matter of experience, and if the photographer has not the necessary experience, he will be well advised to obtain an "exposure-meter" which can be bought cheaply from any photographic dealer.

In photographing rapidly moving objects, see that they are not too near the camera or moving broadside on. Otherwise blurring is bound to occur unless the lens is a very good one and the shutter very fast—say $1/1000$ second.

CURRENCY TABLE.

Place.	Quotation.	Par Value.	Present Value.
Austria ...	Schill to £	34.58½	.....
Belgium ...	Belgas to £	35	..... 1.05
Bulgaria ...	Leva to £	673.659	.....
Canada ...	Dollars to £	4.86½	..... 4.98
China ...	Sterling to \$		.....
Czecho-slovakia	Kron to £	164.25	.....
Denmark	Kroner to £	18.159	.....
Egypt ...	Piastres to £	97½	.....
Esthonia...	Kroon to £	18.159	..... 74.44
France ...	Francs to £	124.21	.....
Finland ...	Marks to £	193.23	.....
Germany...	Reichs to £	20.43	..... 11.75 or 2.38 to 1.
Greece ...	Drachs to £	375	.....
Holland ...	Florins to £	12.107	.....
Hungary	Pengo to £	27.82	.....
India ...	Stg. to Rup.	18d.	.....
Italy ...	Lire to £	92.46	.....
Japan ...	Stg. to Yen	24.58d.	.....
Java ...	Florins to £	12.107	.....
Latvia ...	Lats to £	25.22½	.....
Lithuania	Lits to £	48.66	.....
Manila ...	Pence to \$	24.06d.	.....
Mexico ...	Pesos to £	9.76	.....
Norway ...	Kroner to £	18.159	.....
Poland ...	Zlotys to £	43.38	.....
Portugal ...	Escudos to £	110	.....
Rumania...	Lei to £	813.588	.....
Singapore	Sterling to \$	2/4	.....
Spain ...	Pesetas to £	25.22½	.....
Sweden ...	Kroner to £	18.159	.....
Switzerland	Francs to £	25.22½	.....
Turkey ...	Piastres to £	110	.....
U.S.A. ...	Dollars to £	4.86½	.....
Venezuela	Boliv. to £	25.2215	.....
Yugoslavia	Dinars to £	276.316	.....

LADY'S PACKING MEMORANDA.

Underwear	Stockings
Everyday	Everyday
Evening	Evening
Nightwear	Dress Hangers.....
Handkerchiefs	Clothes Brushes.....
Shoes	„ Repair Set.....
Everyday	Soap
Tennis	Hair Brush.....
Evening	Sponges
Shoe Trees.....	Face Cloth.....
Afternoon Dresses.....	Tooth Paste.....
Blouses	Tooth Brush.....
Jumpers.....	Perfumes
Tennis Frocks.....	Manicure Set.....
Evening Gowns.....	Beauty Kit
Tweeds	Evening Bags
Coats	Jewel Case.....
Evening Cloaks.....	Cash
Coatees	Camera
Raincoat	Films
Furs	Flashlamp
Scarves	Fountain Pen
Veils	Passport (NOT TO BE PACKED)
Gloves	.....
Everyday .....	.....
Evening .....	.....
Hats .....	.....
Dressing Gowns.....	.....
Slippers .....	.....
Bathing Suits.....	.....
„ Cap .....	.....
„ Shoes .....	.....
Beach Wrap.....	.....
„ Shoes .....	.....

GENTLEMAN'S PACKING MEMORANDA.

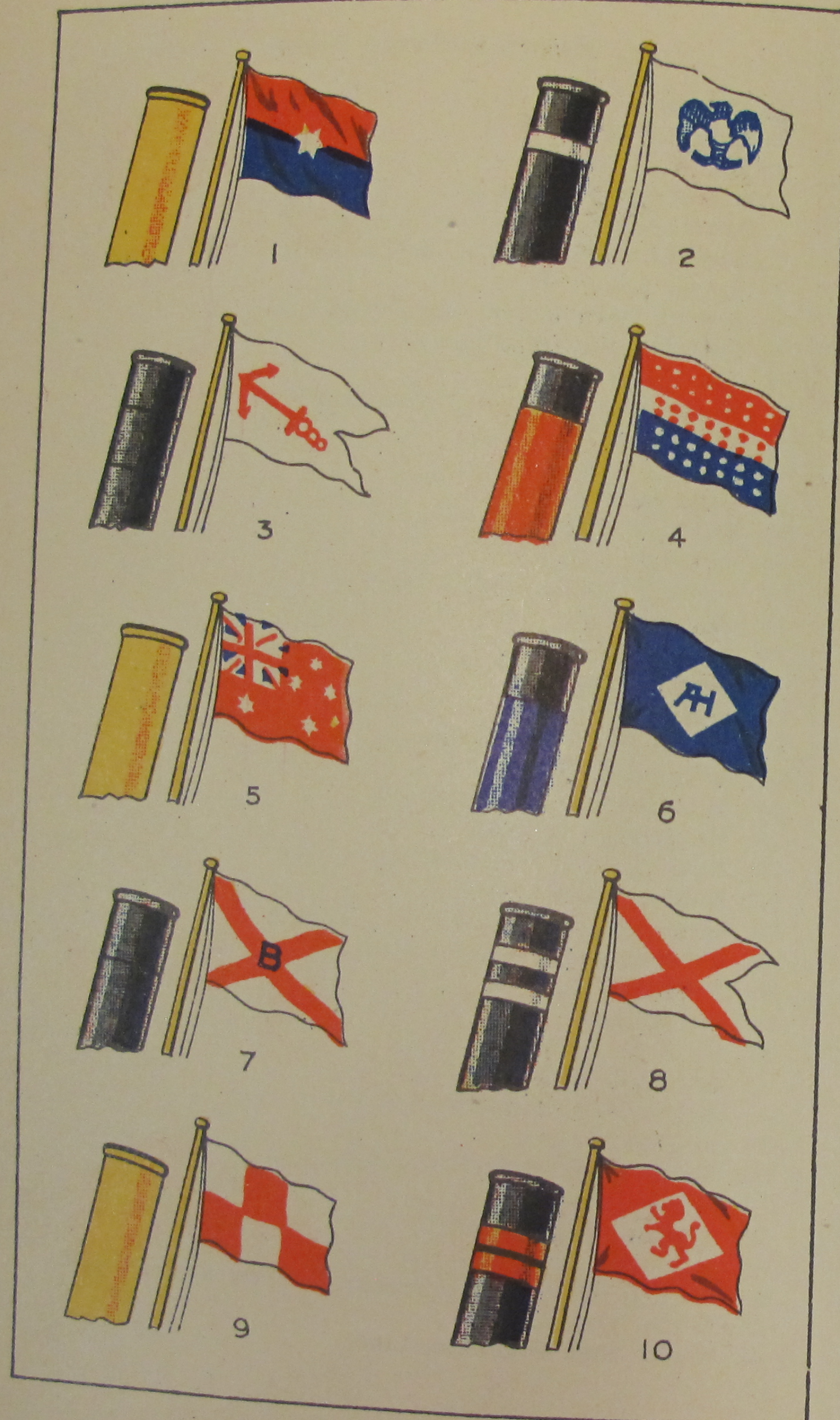
Underwear.....	Raincoat
Shirts	Suit Hangers.....
Everyday	Dressing Gown.....
Tennis.....	Pyjamas.....
Dress	Slippers
Collars	Bathing Kit.....
Day.....	Scarves
Evening	Gloves
Studs	Shaving Kit.....
Links	Sponges
Ties	Soap
Day.....	Brushes
Evening	Nail.....
Socks	Clothes
Day.....	Tooth
Evening	Hair
Handkerchiefs	Tooth Paste.....
Day.....	Scissors
Evening	Nail File.....
Shoes	Buttons
Everyday	Hats
Tennis.....	Caps
Evening	Field Glasses.....
Shoe Trees.....	Camera
Shoe Laces.....	Films
Braces.....	Flashlamp
Belts	Fountain Pen
Suits	Cash
Lounge	Passport (NOT TO BE PACKED)
Dinner	Stick
Flannel Trousers.....	Umbrella
Sweater	Pipes, etc.....
Pullover.....	.....
Blazer.....	.....
Waistcoats (Dress) .....	.....
Overcoat .....	.....

FLAGS AND FUNNELS OF THE PRINCIPAL STEAMSHIP LINES.

Key to Coloured Plates.

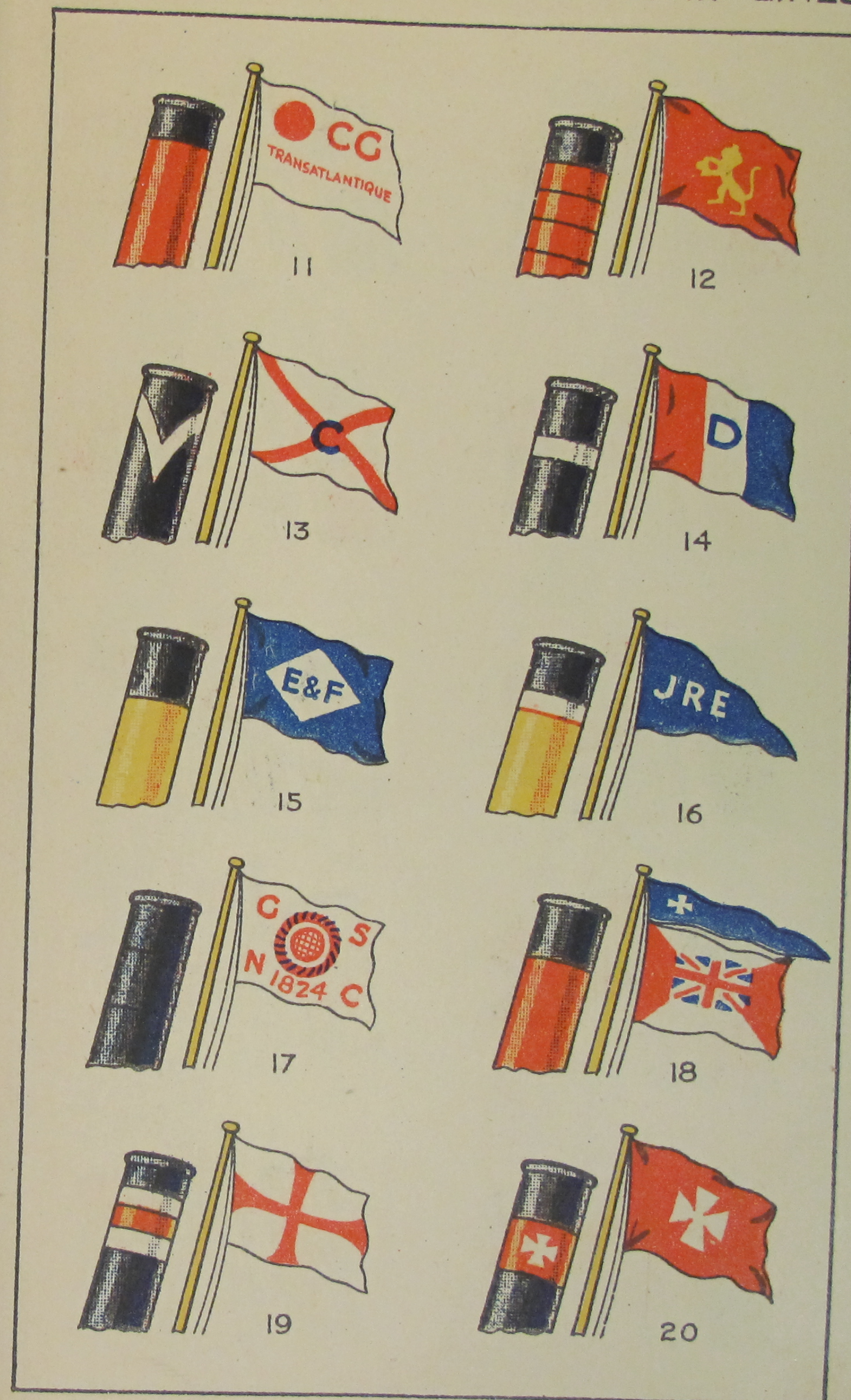
1. Aberdeen Line.
2. American Line.
3. Anchor Line.
4. Atlantic Transport Line.
5. Australian Commonwealth Line.
6. Blue Funnel Line (A. Holt & Co.).
7. Booth Line.
8. British India Steam Navigation Co., Ltd.
9. Canadian Pacific Steamers.
10. Clan Line.
11. Compagnie Générale Transatlantique.
12. Cunard Line.
13. Coast Lines.
14. Donaldson Line.
15. Elders & Fyffes, Ltd.
16. Ellerman Lines.
17. General Steam Navigation Co., Ltd.
18. Glen Line.
19. Harrison Line.
20. Houlder Line.
21. Houston Line.
22. Lamport and Holt Line.
23. Leyland Line.
24. Manchester Lines, Ltd.
25. Messageries Maritimes.
26. Natal Line (Bullard, King & Co.).
27. Nelson Lines.
28. New Zealand Shipping Co., Ltd.
29. Nippon Yusen Kaisha (Japan).
30. Pacific S. N. CO.
31. Orient Line.
32. P. & O. Line.
33. Prince Line.
34. Royal Mail Steam Packet Co.
35. Red Star Line.
36. Shaw, Savill and Albion Line.
37. Strick Lines.
38. United States Lines.
39. Union Castle Line.
40. United Steamship Company of New Zealand, Ltd.
41. White Star Line.
42. White Star Dominion Line.

FLAGS & FUNNELS OF STEAMSHIP LINES



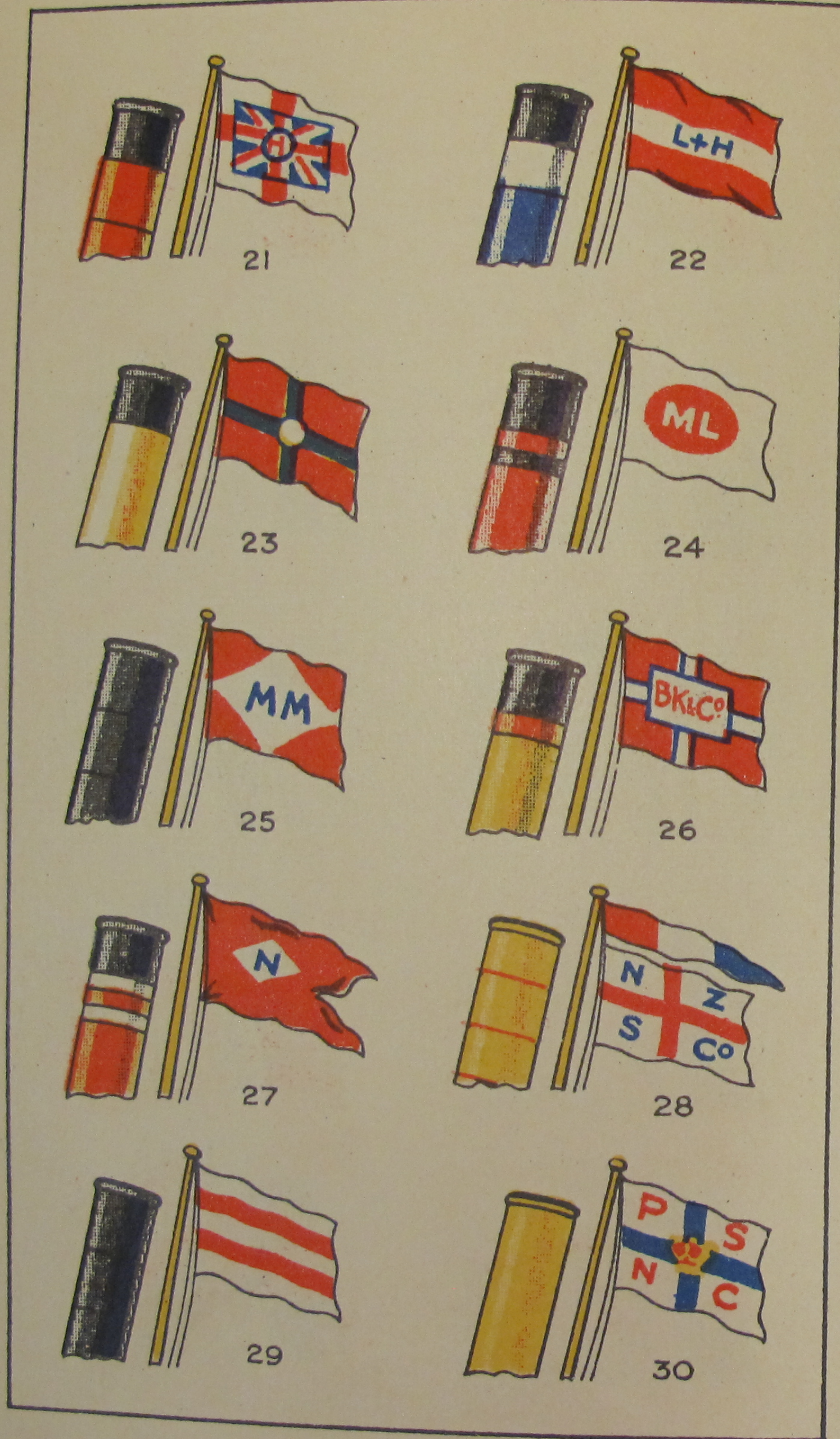
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FLAGS & FUNNELS OF STEAMSHIP LINES



8.29

FLAGS & FUNNELS OF STEAMSHIP LINES



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FLAGS & FUNNELS OF STEAMSHIP LINES



9.31

ENSIGNS AND NATIONAL MERCHANT FLAGS

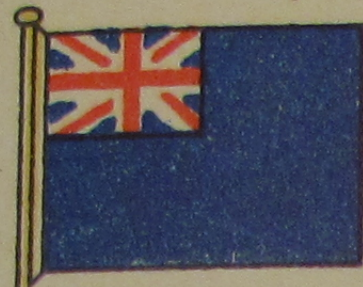
GREAT BRITAIN

White Ensign



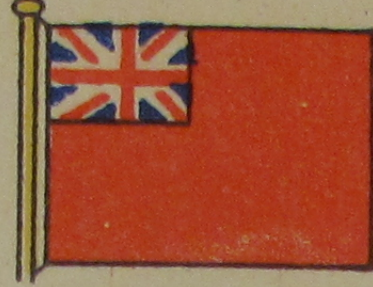
Royal Navy

Blue Ensign



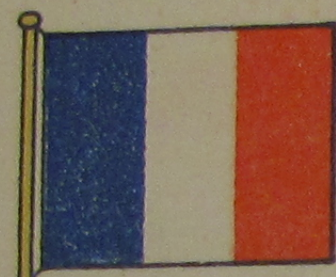
Royal Naval Reserve

Red Ensign



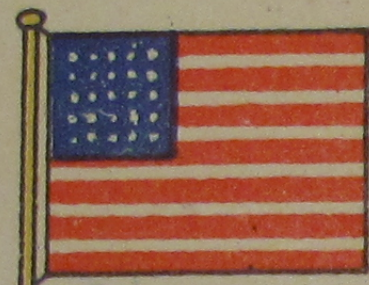
Merchant Service

FRANCE



Man of War
& Merchant

U. S. A.



Man of War
& Merchant

BELGIUM



Man of War
& Merchant

HOLLAND



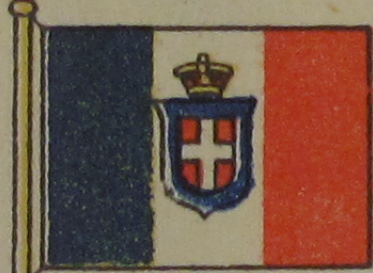
Man of War
& Merchant

PORTUGAL



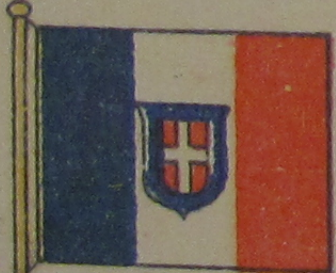
Man of War
& Merchant

ITALY



Man of War

ITALY



Merchant

NORWAY



Man of War

NORWAY



Merchant

SWEDEN



Man of War

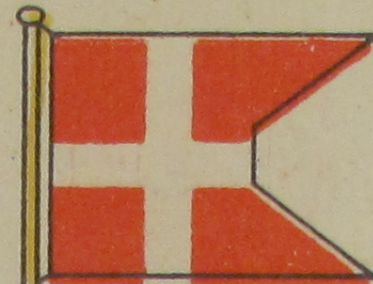
SWEDEN



Merchant

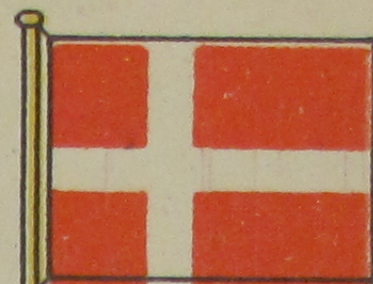
ENSIGNS AND NATIONAL MERCHANT FLAGS

DENMARK



Man of War

DENMARK



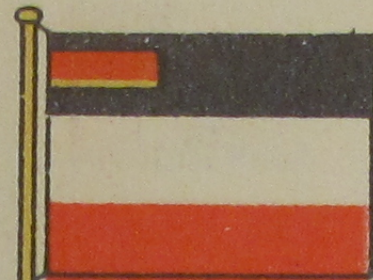
Merchant

GERMANY



Man of War

GERMANY



Merchant

SPAIN



Man of War

SPAIN



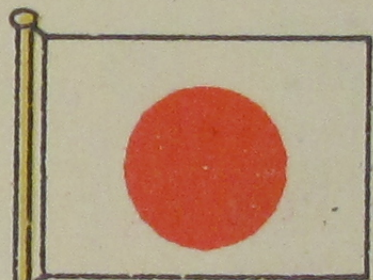
Merchant

JAPAN



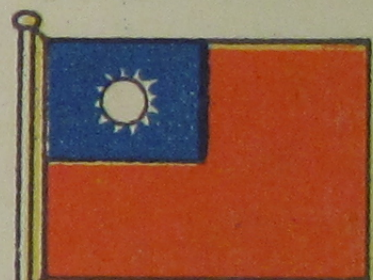
Man of War

JAPAN



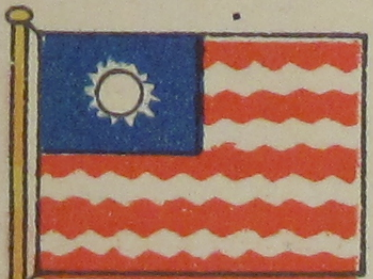
Merchant

CHINA



Man of War

CHINA



Merchant

RUSSIA



Man of War

RUSSIA



Merchant

AUSTRIA



Man of War
& Merchant

GREECE



Merchant



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